SM3H --1.8 odd answers for complex zero

1. $f(x) = x^2 + 9$; zeros = $\pm 3i$; x-intercepts = none

3. $f(x) = (x - 1 + 2i)(x - 1 - 2i)$; x-intercept = none; degree = 2

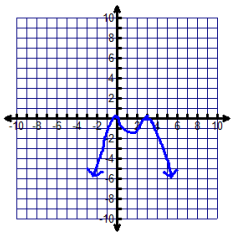
5. $f(x) = (x + 2)(x - 1 - 2i)(x - 1 + 2i)$; x-intercept = -2; degree = 3

7. $x^3 - 2x^2 + 9x - 18$; x-intercept = 2; degree = 3

9. $f(x) = (x - 1)^2(x + 2)^3$; x-intercept = 1, -2; degree = 5

11. $f(x) = 2(x - 5i)(x + 5i)(x - 2 + 4i)(x - 2 - 4i)(x + 8)^2$; x-intercept = -8; degree = 6

13. $f(x) = -x^4 + 6x^3 - 9x^2$; x-intercept = 0, 3; degree = 4



15. b

17. d

19. $f(x) = \frac{1}{4}(x - 1)(2x - 1 - \sqrt{19}i)(2x - 1 + \sqrt{19}i)$

21. $f(x) = (2x - 3)\left(x + \sqrt{2}\right)\left(x - \sqrt{2}\right)$

23. $f(x) = (x - 1 - i)(x - 1 + i)\left(x - \sqrt{3}\right)\left(x + \sqrt{3}\right)$

25. $f(x) = (x - 3 - 2i)(x - 3 + 2i)\left(x - \sqrt{2}\right)\left(x + \sqrt{2}\right)$

27. $f(x) = (x - 1)(2x^2 + x + 3)$

29. yes, the other 2 can be imaginary

31. no, imaginary number must come in pairs so this already has a degree of 5

33. a since imaginary numbers must come in pairs you can't have an even number of real zeros when the degree is 5

35. Bonus (good luck)